



# LAGNIAPPE

Volume 4 Issue 4

[www.nasa.gov/centers/stennis](http://www.nasa.gov/centers/stennis)

April 2009

## STS-119: Mission accomplished



Space shuttle Discovery returned to Earth on March 28 (below), completing the 13-day STS-119 mission that was delayed on the launch pad as Stennis Space Center engineers conducted tests on a flow control valve of concern. Launched on March 15 (left), the Discovery team traveled to the International Space Station to deliver and install the fourth and final set of solar array wings, completing the station's truss, or backbone. However, the flight did not begin smoothly. Concerned about a gaseous hydrogen flow control valve that failed to function on the previous mission, NASA engineers ordered testing to determine if Discovery could be flown safely. Several NASA centers participated in the testing and analysis. Stennis performed key tests on the valve, providing information that was critical in determining Discovery's flight readiness. "The talents and dedication of the Stennis team were invaluable in clearing the way for the safe and successful launch of STS-119," said Bartt Hebert, chief engineer in the Stennis Engineering and Test Directorate. "The Stennis team quickly responded to the challenge of testing the flow control valve. This was no easy task. Appreciation for the great work of the Stennis team was expressed by the agency at the final Flight Readiness Review at Kennedy Space Center, where the data collected at Stennis was used in determining that Discovery was 'Go' for launch."



### STS-125 at launch pad

Space shuttle Atlantis sits at Launch Pad 39A at Kennedy Space Center in Florida, ready to begin its STS-125 mission to service the Hubble Space Telescope. Atlantis is scheduled to fly May 12, beginning a final 11-day mission to the space telescope. During five planned spacewalks, astronauts will install two new instruments, repair two inactive ones and perform component replacements designed to keep the telescope functioning into at least 2014. In addition to the originally scheduled work, Atlantis also will carry a replacement Science Instrument Command and Data Handling Unit for Hubble. Astronauts will install the unit on the telescope, removing the one that stopped working last September. The mission was delayed until the replacement unit was ready. As with all other previous shuttle missions, Stennis engineers tested all three main engines to be used in launching Atlantis on its mission.



From the desk of

**Gene Goldman**

Director  
Stennis Space Center



*“And though she be but little, she is fierce.”*  
*(William Shakespeare – “A Midsummer Night’s Dream”)*

The word “little” is often used referring to Stennis Space Center, with one of the agency’s smallest workforces. Heritage, mission and relevance are words that also equally apply.

This center has a long history of generating success from “little” opportunities. Our Applied Science and Technology Project Office is part of that history, with various settings in drama, tragedy and comedy.

Its roots are the Earth Resources Laboratory, established at the Manned Spacecraft Center (Johnson Space Center) and moved here in 1970 as part of a “full utilization” philosophy. ERL was to be the “NASA centerpiece in the establishment of a family of environmental research agencies.”

The laboratory was to be an organization to “perform research in remote sensing applications for potential benefits.” *(Source: “Way Station to Space” by Mack Herring)* It has been – and still is. Specific projects and staffing levels have waxed and waned over these nearly 40 years, but the applicability of the work to this region

has not. The office is probably at its smallest level ever, but it is poised for increasingly significant work.

Much of the laboratory’s current strategy is related to NASA’s Gulf of Mexico Initiative, created in 2007 “to enhance the region’s ability to recover from the devastating hurricanes of 2005 and to address its coastal management issues going into the future.” We’re living adjacent to a living laboratory, the Gulf. Our projects “to better understand the earth and its environments” in this region will have a direct impact on our local communities.

With work recently featured in “Photogrammetric Engineering and Remote Sensing,” current studies of Mobile Bay water quality and Gulf Coast forest conditions, development of in situ optical sensor packages, and future work related to the barrier islands, we have a major role in this research theater.

We probably will never be a lead center in science, but we have incredible potential for partnering and collaboration. Our federal city – a “crossroads of science” with the National Oceanographic and Atmospheric Administration, the Environmental Protection Agency, the Naval Research Laboratory and others on site – offers an opportunity to have significant influence in this region. Benefit to society is the goal of scientific study.

“Little,” yes, but let us “be fierce!”

Dream big; work harder!



**Stennis director visits Washington**

Stennis Space Center Director Gene Goldman (right) visited Washington, D.C. last month, where he called on Louisiana and Mississippi leaders to update them on work at the rocket engine testing facility. Rep. Gene Taylor, D-Miss., was among those visited by Goldman on March 24.

**Hancock County officials visit Stennis**

Supervisors and officials of Hancock County in Mississippi visited the A-3 Test Stand under construction during a visit to Stennis Space Center on April 7. Visiting officials included (l to r): Tax Assessor Jimmie Ladner, Chancery Clerk Tim Kellar and supervisors Lisa Cowand, Steve Seymour and Rocky Pullman. They were joined by Lonnie Dutreix, project manager for NASA’s Constellation Program Office at Stennis.



FULFILLING NASA'S EXPLORATION MISSION

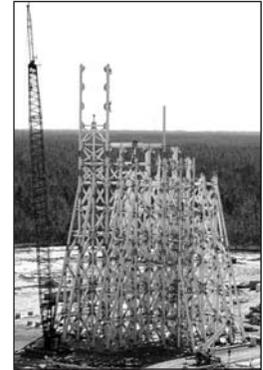
# A-3 structural steel work done



Oct. 29, 2008 – Structural steel work begins.



Dec. 19, 2008 – Stage assembly continues



Jan. 23, 2009 – Going up

Stennis Space Center engineers celebrated a key milestone in construction of the A-3 Test Stand on April 9 – completion of structural steel work. Workers with Lafayette (La.) Steel Erector Inc. placed the last structural steel beam atop the stand during a noon ceremony attended by more than 100 workers and guests.

Observers applauded and cheered as the beam – which featured signatures of those involved in the project and was topped with an American flag, a NASA flag and a potted pine sapling – was bolted into place. The event marked final assembly of 4 million pounds and 16 stages of fabricated steel on the test stand foundation. The A-3 structure is the first test stand to be built at Stennis since the 1960s, when the facility was opened. Once complete, it will be used to test the J-2X engine being built to help power the Ares I and Ares V rockets that will take humans back to the moon and possibly beyond as part of NASA's Constellation Program. The A-3 Test Stand will allow engineers to test the J-2X engine at simulated altitudes of up to 100,000 feet.



April 9, 2009 – 235 feet closer to the moon

Structural steel work on the A-3 Test Stand at Stennis Space Center involved several companies – IKBI Inc. of Choctaw, Miss., as prime contractor for the project; Prospect Steel Co. of Little Rock, Ark., for steel fabrication; and Lafayette (La.) Steel Erector for structural steel erection. During the April 9 ceremony, the companies were praised for completing the structural steel work on time and without incident. In turn, company and NASA representatives spoke of the sense of history surrounding the project. "We're now 235 feet closer to going back to the moon," said Lonnie Dutreix, A-3 project manager for NASA. Participants in the April 9 ceremony included IKBI President Jeff Graham and Project Manager P.J. Pearson; Lafayette Steel Erector President/CEO J.B. Prudhomme, Project Manager Mike Rourke and Project Superintendent John Fields; Prospect Steel Co. Project Superintendent Mark McCrindle; and NASA's Andrew "Bo" Clarke, contracting officer's technical representative for the A-3 project.



April 9, 2009 – The final structural steel beam, bearing flags and the names of project workers, is hoisted high and fastened into place.

## Smart and intelligent sensor payload project

# Payload work based on team effort

A select team of Stennis Space Center engineers is completing a smart and intelligent sensor payload that could become a valuable tool for NASA's Constellation Program.

Once completed, the smart and intelligent sensor payload (SiSP) being built at Stennis will be used at the test launch of the Max Launch Abort System in May. MLAS is an alternate concept for the abort system planned for use on the Orion spacecraft to be launched by the Ares I rocket, NASA's next-generation launch vehicle.

Work on the MLAS concept began in 2007 as a project of NASA's Engineering and Safety Center. For the effort, leaders pulled together three generations of engineers to draw from varying perspectives and levels of experience, including relatively young, inexperienced "resident engineers." Stennis adopted the model when assembling their SiSP team. Other Stennis engineers served as mentors.

Stennis joined the MLAS effort too late to be incorporated into the on-board technology demonstration hardware for the May test launch. However, MLAS officials were interested enough in the Stennis proposal and its use of state-of-the-art technologies and processes to invite the team to demonstrate its sensor payload. For the launch, the sensor payload will be part of the ground measurement instrumentation and will gather a variety of duplicate operating and payload-specific measurements from the MLAS craft.

Whether Stennis' design is included in the on-board systems on a future MLAS test flight or on another launch vehicle, the effort and the technologies used will pay dividends and can

be used elsewhere at Stennis, said John Schmalzel, NASA's principal investigator for the project.

Indeed, the sensor payload effort is tied to the larger push at Stennis to develop an Integrated System Health Management (ISHM) concept, a high-tech, highly-integrated means of monitoring systems. Those associated with the overall concept say the approach will save time and money and reinforce the safety of a system. Smart and intelligent sensors are key

out. They also designed custom housings for the intelligent sensors, along with the brackets and connecting plates needed to mount the sensors to the MLAS launch stool.

For those steps, engineers used state-of-the-art rapid prototyping methods and equipment. For instance, a 3-D Computer Aided Design tool was used to create a model of an enclosure, which then was produced directly using a dimensional printer that "writes" the design into the model material. Metal brackets and other connecting plates were produced directly from CAD drawings, using an abrasive water-jet cutting process, which is faster and more efficient than other machining methods.

The goal of MLAS is to investigate an alternate concept launch abort system as a risk mitigation for the system currently in development for Orion. Once MLAS is tested, its performance will be reviewed and a decision will be made whether to proceed with further development and testing.

Schmalzel is looking forward to positive results. He noted that the Stennis goal is to raise the tech readiness level (TRL) of the sensor payload technologies from level 6 to level 7. TRL is a measure of an evolving technology's maturity. The highest level, TRL 9, means a technology is flight-proven and available for design into future spacecraft.

"This is all part of developing and demonstrating next-generation technologies that our team would like to get out on the test stands and into flight vehicles," Schmalzel said. "It's a very exciting time to be involved in supporting a new generation of flight vehicles and to be working in a project environment that includes NASA mentors, experienced contractors and our resident engineers."



Engineers working on the smart and intelligent sensor payload project include (l to r): Ed Conley (NASA), Mark Mitchell (Jacobs Technology), Luke Richards (NASA), Robert Drackett (Jacobs Technology), Mark Turowski (Jacobs Technology), Richard Franzl (seated, Jacobs Technology), Greg McVay (Jacobs Technology), Brianne Guillot (Jacobs Technology), Jon Morris (Jacobs Technology), Stephen Rawls (NASA), John Schmalzel (NASA) and Andrew Bracey (NASA).

to such an approach, allowing automated monitoring and troubleshooting of system components. For SiSP, Stennis engineers are using various smart and intelligent sensors, some of which also are incorporated into ISHM work. One is a commercial product made by Mobitrum that was developed through NASA's Innovative Partnerships Project and Small Business Innovation Research program funding.

From the physical standpoint, the payload project began from scratch. Based on the required criteria for the payload, Stennis engineers decided what sensors to include, and then designed a payload package and lay-

# PWR recommended for Star status

NASA's John C. Stennis Space Center took an important step in achieving a major safety goal in March with the announcement that resident contractor Pratt & Whitney Rocketdyne received a recommendation for VPP (Voluntary Protection Programs) Star Demonstration status by the Occupational Safety and Health Administration.

PWR is the first resident agency at Stennis to gain the recommendation; however, four others are seeking Star Demonstration status. Once all five resident agencies have attained VPP Star Demonstration status, Stennis will apply to become an overall VPP Star site, a designation of safety excellence.

OSHA established Voluntary Protection Programs in 1982 as a proactive safety management model so organizations and their employees could be recognized for excellence in safety and health.

Today, about 2,000 organizations, including two NASA centers, have been designated VPP Star sites. Leaders at Stennis and all other non-designated NASA centers have set their sights on that goal as well.

A key step is for the five resident agencies to attain VPP Star Demonstration Status. They do so by demonstrating comprehensive and



successful safety and health management programs in the workplace. For instance, they must achieve injury and illness rates at or below the national average of their respective industries.

OSHA reviews safety and health records and policies of applying agencies and conducts an onsite visit as well. Once an agency achieves VPP Star status, OSHA returns at regular intervals to make sure designated sites are continuing in safety and health efforts.

In addition to PWR, VPP Star Demonstration status at Stennis is being sought by Applied Geo Technologies Inc., Computer Sciences Corp., Jacobs Technology Facilities Operating Services Contract and Jacobs Technology NASA Test Operations Group.

Meanwhile, Stennis leaders are preparing for their own VPP Star site application. The goal is to attain the status by September 2010.

To that end, Stennis leaders are working to educate the center workforce of the importance of good safety and health practices. They have formed a STARS (Striving to Achieve Real Safety) Committee of employees from all areas of the organization. They are encouraging employees to participate in the center's close call system to report any event or condition that could result in an accident, injury or illness. They also are emphasizing the importance of eliminating hazards within one's area and of ongoing safety training.

"I do see an improvement in the awareness level of employees," said NASA's Maggie Jones, VPP coordinator at Stennis. "This is a significant effort to create the safest possible environment at Stennis. Reports indicate that companies and facilities that achieve VPP Star status see a decline in injuries and in lost time."

Financially, VPP Star companies and facilities also report a drop in workers' comp rates. The safety and health emphasis also promotes a deeper sense of teamwork, especially at a site like Stennis, where multiple agencies must coordinate their efforts, Jones explained.

"There is a whole lot of working together going on here," she said. "This is an effort that will benefit everybody at Stennis."

## Louisiana first lady joins NASA at recent events



Louisiana first lady Supriya Jindal joined NASA at two events in New Orleans on March 19. (Left) Jindal takes a turn at the controls of a competing robot during a visit to the 2009 FIRST Robotics Bayou Regionals tournament. (Right) Jindal joins retired astronaut Sally Ride (seated) in speaking to teachers and students at A.P. Tureaud Elementary School in New Orleans.



# Safety urged at Interstate 10 ramps

Stennis Space Center employees are being reminded to drive with care when using Interstate 10 exit ramps to travel to the work facility.

On most nights, tractor-trailer drivers park their vehicles on the shoulder of the ramp in order to rest. The issue of safety arises when the drivers prepare to resume their journeys the following morning. Vehicle doors may be open as drivers emerge or the tractor-trailers may be moving slowly as they re-enter the driving lane at the same time other cars and trucks are entering the exit ramp to access Mississippi Route 607.

No accidents have occurred, and Stennis safety officials want to maintain that record. They are urging motorists – especially those traveling early in the mornings – to be aware of the situation and drive accordingly.

“Drive the speed limit first of all,” said David Delsanto, Stennis security officer. “The speed limit on the ramp is 40 miles per hour. Many drivers are not respecting that fact, and that can create an unsafe situation. Also, drive defensively. Be aware of your surroundings.”



A traffic sign at Interstate 10 Exit 2 clearly displays the legal speed limit for vehicles using the ramp to access Mississippi Route 607.

Cpt. Robert Bowman, investigator with Paragon Systems at Stennis, said there is no law against drivers parking on the shoulder of the ramp or any other roadway, as long as their vehicles are out of the driving lanes.

Thus, the issue comes down to personal responsibility, he said. “Remember that the speed limit signs on the ramp are the law,” he said. “And remember that all rules of the road apply in using the ramp. Use common sense. Drive safely. You’re responsible for your own driving.”



## Women’s History Month panel focuses on leadership

Stennis Space Center marked Women’s History Month with a March 11 panel discussion on “Enabling Women for Leadership.” Participants in the presentation included (l to r): Jeff Wright of Pratt & Whitney Rocketdyne; panelist Mary Jones of the Naval Meteorology and Oceanography Command at Stennis; panelist and astronaut Ellen Ochoa of Johnson Space Center in Houston; Meredith Mendez and panelist Gayle Sloan, both of the St. Tammany Parish public school system in Covington, La.; and moderator Heidi Davidz of PWR. A veteran of four space shuttle flights, Ochoa serves as deputy director of Johnson Space Center.



## Stennis’ granddaughter visits Mississippi facility

Jane Kenna of Atlanta, granddaughter of the late Sen. John C. Stennis, stands with her husband, John, near a bust of her grandfather displayed in StenniSphere, the visitor center at NASA’s John C. Stennis Space Center. Kenna visited Stennis on April 6, her first trip to the rocket engine testing facility since the 1988 ceremony to rename the site in honor of Stennis. The longtime senator from Mississippi was a staunch supporter of NASA and played a pivotal role in convincing the agency to build its engine testing facility in south Mississippi. President Ronald Reagan paid tribute to that support by designating that the site then known as the National Space Technologies Laboratories would thereafter bear the Stennis name.

**Office of Diversity and Equal Opportunity**

# Celebrate Stennis multiculturalism

In January 2008, NASA Stennis (Jo Ann Larson), NASA Shared Services Center (Ruth Mcneil) and the Naval Meteorology and Oceanography Command (Bill Fisher) Offices of Diversity and Equal Opportunity began collaborating and sharing resources to develop, publicize and implement diversity and equal opportunity programs at Stennis Space Center.

The successful collaboration of these three offices led to an expanded effort that conceived and launched the Stennis Diversity Council (SDC) in November 2008. The sitewide council includes members from 24 resident agencies and contractors who have joined forces to sponsor, support and celebrate the multiculturalism of the Stennis workforce. Programs and activities are conceived and sponsored by the SDC to promote com-



Members of the Stennis Diversity Council (shown above) work to sponsor, support and celebrate multiculturalism at the rocket engine testing facility.

munication, understanding, diversity and inclusion, as well as to strengthen partnerships across Stennis.

Since the SDC's inception, the following events have been sponsored: Dr. Martin Luther King Jr. program; Black History Month Lunch and Learn documentary chronicling the history of the African-American experience/contributions to Mardi Gras in New Orleans; Black History Month panel discussion on black citizenship in the Americas; Women's History Month panel discussion on "Enabling Women for Leadership;" Girl Scouts event involving 120 participants; and Holocaust Remembrance program.

Other events are in the planning stage, including a sitewide celebration of Stennis' diversity and culture in October 2009. So, stay tuned! An SDC Web site is under construction at <http://ssccommunity.ssc.nasa.gov>. The site will have information on upcoming events, photos, council meeting notes, etc.

*For additional information, contact Jo Ann Larson, 8-2079 or [JoAnn.M.Larson@nasa.gov](mailto:JoAnn.M.Larson@nasa.gov)*

## Hail & Farewell

**NASA bids farewell to the following:**

<b>Janet Austill</b>	Secretary Office of the Director
<b>Robyn Calliham</b>	Contract Specialist Office of Procurement
<b>Bruce Davis</b>	Physical Scientist Project Directorate
<b>Kenneth Volante</b>	Safety & Occupational Health Specialist Office of Safety and Mission Assurance

**And welcomes the following:**

<b>Chris McGee</b>	Public Affairs Specialist Office of External Affairs
--------------------	---

# @ Stennis

## What is the first thing that comes to mind when someone mentions the Apollo 11 moon mission?

**Editor's Note:** @ Stennis is a monthly feature highlighting the views and opinions of Stennis Space Center employees.

 <p>"Apollo 11 was truly the start of an exciting era. My immediate thought is what the future has for us out there now; it continues to be exciting." <b>Merlon Hines, Computer Sciences Corp.</b></p>	 <p>"My first thought is of the words Neil Armstrong said – 'That's one small step for man, one giant leap for mankind.' They were so true." <b>Julio Melhado, Melhcorp, L.L.C.</b></p>
 <p>"It was exciting to see NASA put the first human on the moon. The photos and the words of Neil Armstrong – they still give me goose bumps." <b>Susan Madeline, Jacobs FOSC</b></p>	 <p>"I was at Stennis then. It was just exciting to sit back and watch the events, and it was unbelievable to think you were a part of it all." <b>James Reese, NASA</b></p>

# Teams compete in Bayou Regionals

**T**eams from 31 high schools in nine states recently competed for top honors during the 2009 FIRST (For Inspiration and Recognition of Science and Technology) Robotics Bayou Regional competition held March 19-21 in New Orleans.

A team from St. Stanislaus College High School in Bay St. Louis partnered with two Texas schools to emerge as the tournament's alliance champion. In addition, the team from Gulfport (Miss.) High School walked away with the most prestigious of honors, earning the Regional Chairman's Award, which recognizes the team creating the best partnership effort and best exemplifying the true meaning of FIRST.

The team from St. Patrick Catholic High School in Biloxi received the second-highest award, earning the Regional Engineering Inspiration Award for outstanding success in advancing respect and appreciation for engineering within the team's school and community. The team from Mandeville (La.) High School won the Rookie All-Star Award for its first-year performance.

Meanwhile, at the Lone Star Regional in Houston on March 26-28, Picayune and Pearl River Central high



Students (left) from St. Patrick Catholic High School in Biloxi, Miss., maneuver their robot during the 2009 Bayou Regional competition.

schools in Picayune, Miss., also partnered with two Texas teams to capture the alliance championship.

All five teams will compete in the national championship in Atlanta on April 16-18.

At the Bayou Regionals, Dale Bibee, with the Naval Research Laboratory at Stennis, won the Woodie Flowers Award, given to the mentor who best demonstrates excellence in teaching science, math and creative design.

## Stennis unveils Science on a Sphere

Students from Xavier University Preparatory School in New Orleans view the newest exhibit at StenniSphere, the visitor center at NASA's John C. Stennis Space Center – Science on a Sphere, a 68-inch global presentation of planetary data of the past, present and future. StenniSphere is only the third NASA visitor center to offer Science on a Sphere, a computer system that uses four projectors to display data on a globe and present a dynamic, revolving, animated view of Earth and other planets. The exhibit includes more than 280 data sets that display a planet's atmosphere, oceans, land and more. The stationary sphere spins virtually via computer programming, allowing users to see any desired part of the globe by twisting a remote control. Data sets offer real-time data, including weather and earthquakes. There also is a module that models the effects of global warming.



## LAGNIAPPE

is published monthly by the  
Office of External Affairs – Public Affairs  
at NASA's John C. Stennis Space Center.

Comments or suggestions should be forwarded to:

NASA PUBLIC AFFAIRS OFFICE  
Attn: LAGNIAPPE  
Mail Code IA10  
Building 1100, Room 22214  
Stennis Space Center, MS 39529

or call 228-688-3749

Managing Editor ..... Chris McGee  
Editor ..... Lacy Thompson  
Contributing Writer ..... Gene Coleman



National Aeronautics and  
Space Administration

**John C. Stennis Space Center**  
Stennis Space Center, MS 39529

Official Business  
Penalty for Private Use \$300

PRESORTED STANDARD  
U.S. POSTAGE  
**PAID**  
BATON ROUGE, LA  
PERMIT NO. 984